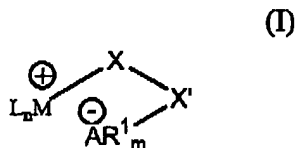
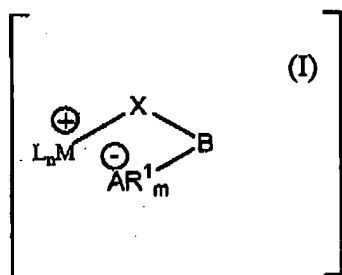


**AMENDMENTS TO THE CLAIMS**

1. (Once amended) A zwitterionic transition metal compound of the formula I



where

L are identical or different and are each a  $\pi$ -ligand or an electron donor, n is equal to 1, 2, 3 or 4,

M is a metal atom of group IIb, IVb, Vb or VIb of the Periodic Table of the Elements,

X is a heteroatom or a hydrocarbon group having 1-40 carbon atoms,

X' is a hydrocarbon group having 1-40 carbon atoms,

A is an atom of group Ib, IIb, IIIa, IIIb, IVa, Va, Vb, VIb, VIIb or VIIIb of the Periodic Table of the Elements,

R<sup>1</sup> are identical or different and are each a perhalogenated C<sub>1</sub>-C<sub>40</sub>-hydrocarbon radical, and m is equal to 1, 2, 3, 4 or 5.

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2. (original) A transition metal compound as claimed in claim 1, wherein the radicals L are identical or different and are each a  $\pi$ -ligand.
3. (original) A transition metal compound as claimed in claim 1, wherein the radicals L are identical or different and are each an unsubstituted or substituted cyclopentadienyl group.
4. (original) A transition metal compound as claimed in claim 1, wherein the radicals L are linked to one another via a bridge.
5. (original) A transition metal compound as claimed in claim 1, wherein  $n=2$  when M is a metal atom of group IVb of the Periodic Table of the Elements.
6. (original) A transition metal compound as claimed in claim 1, wherein
- M is a metal atom of group IVb of the Periodic Table of the Elements, n is equal to 2,
- L are identical or different and are each a substituted or unsubstituted cyclopentadienyl group, where two radicals L are optionally linked to one another via a bridge Z and
- Z is  $\text{CR}^2\text{R}^3$  or  $\text{SiR}^2\text{R}^3$  or a unit  $\text{Si}-(\text{CR}^2\text{R}^3)_x-\text{Si}$  which links two fragments
- $\text{L}_n\text{M}^+\text{XX}'-\text{A}-\text{R}_m^1$  with one another, where x is an integer from 0 to 10,
- X and X' together form a three-membered to five-membered hydrocarbon chain which can be saturated or unsaturated and are unsubstituted or substituted by one or more  $\text{C}_1\text{-C}_{20}$ -hydrocarbon radicals,
- $\text{R}^2$  and  $\text{R}^3$  are identical or different and are each a hydrogen atom, a halogen atom, a  $\text{C}_1\text{-C}_{20}$ -alkyl group, a  $\text{C}_1\text{-C}_{10}$ -fluoralkyl group, a  $\text{C}_1\text{-C}_{10}$ -alkoxy group, a  $\text{C}_6\text{-C}_{14}$ -aryl group, a  $\text{C}_6\text{-C}_{10}$ -fluoroaryl group, a  $\text{C}_6\text{-C}_{10}$ -aryloxy group, a  $\text{C}_2\text{-C}_{10}$ -alkenyl group, a  $\text{C}_7\text{-C}_{40}$ -arylalkyl group, a  $\text{C}_7\text{-C}_{40}$ -alkylaryl group, a  $\text{C}_8\text{-C}_{40}$ -arylalkenyl group, or  $\text{R}^2$  and  $\text{R}^3$  together with the atoms connected them form one or more rings, and  $\text{R}^2$  and  $\text{R}^3$  are optionally bonded to L;

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A is an atom of group Ib, IIb, IIIa, IVa, Va, Vb of the Periodic Table of the Elements,

$R^1$  are identical or different and are each a perfluorinated alkyl or aryl group having from 1 to 20 carbon atoms and

m is equal to 2, 3 or 4.

7. (original) A transition metal compound as claimed in claim 6, wherein

M is zirconium,

n is equal to 2,

L are identical or different and are each a substituted cyclopentadienyl group, where two radicals L are linked to one another via a bridge Z, where Z is  $CR^2 R^3$  or  $SiR^2 R^3$  and  $R^2$  and  $R^3$  are as defined in claim 6,

X and X' together form an unsaturated four-membered hydrocarbon chain whose hydrogen atoms are optionally replaced by  $C_1$ - $C_{20}$ -alkyl groups,

A is boron atom,

$R^1$  are identical and are each a pentafluorophenyl group ( $C_6 F_5$ ) and

m is equal to 3.

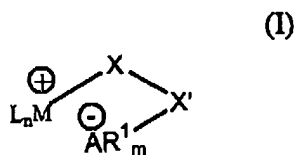
8. (original) A catalyst component comprising at least one transition metal compound as claimed in claim 1.

9. (original) A catalyst component as claimed in claim 8, additionally containing a support.

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10. (Once amended) A process for preparing a compound according to claim 1 of the formula I,



where

L are identical or different and are each a  $\pi$  ligand or an electron donor, n is equal to 1, 2, 3 or 4,

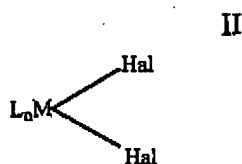
M is a metal atom of group IIIb, IVb, Vb or VIb of the Periodic Table of the Elements,

X is a heteroatom or a hydrocarbon group having 1-40 carbon atoms,

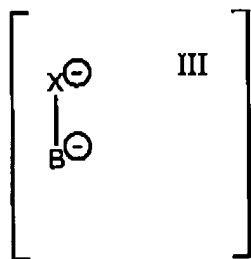
X' is a hydrocarbon group having 1-40 carbon atoms,

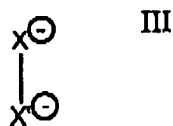
A is an atom of group Ib, IIb, IIIa, IIIb, IVa, Va, Vb, VIb, VIIb or VIIIb of the Periodic Table of the Elements,

R<sup>1</sup> are identical or different and are each a perhalogenated C<sub>1</sub>-C<sub>40</sub>-hydrocarbon radical, and m is equal to 1, 2, 3, 4 or 5, which comprises reacting a compound of the formula II



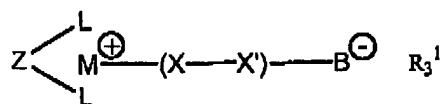
with a compound of the formula III





and reacting the reaction product with a compound of the formula  $\text{AR}^1_m$ , where L, n, M, [X, B,]  $\text{X}, \text{X}', \text{A}, \text{R}^1$  and m in the formulae II, III and  $\text{AR}^1_m$  are as defined for the formula I and Hal is a halogen atom.

11. (original) A zwitterionic transition metal compound of the formula



wherein: L and L' are identical or different and are each a substituted or unsubstituted cyclopentadienyl group;

Z is a bridge linking together said L and L' and is a group of the formula  $\text{CR}^2\text{R}^3$  or  $\text{SiR}^2\text{R}^3$ ;

$\text{R}^2$  and  $\text{R}^3$  are identical or different and are each a hydrogen atom, a halogen atom, a  $\text{C}_1$ - $\text{C}_{20}$ -alkyl group, a  $\text{C}_1$ - $\text{C}_{10}$ -fluoralkyl group, a  $\text{C}_1$ - $\text{C}_{10}$ -alkoxy group, a  $\text{C}_6$ - $\text{C}_{14}$ -aryl group, a  $\text{C}_6$ - $\text{C}_{10}$ -fluoroaryl group, a  $\text{C}_6$ - $\text{C}_{10}$ -aryloxy group, a  $\text{C}_2$ - $\text{C}_{10}$ -alkenyl group, a  $\text{C}_7$ - $\text{C}_{40}$ -arylalkyl group, a  $\text{C}_7$ - $\text{C}_{40}$ -alkylaryl group, a  $\text{C}_8$ - $\text{C}_{40}$ -arylalkenyl group, or  $\text{R}^2$  and  $\text{R}^3$  together with the atoms connected them form one or more rings, and  $\text{R}^2$  and  $\text{R}^3$  are optionally bonded to L;

M is a metal atom of group IVb of the Periodic Table of the Elements;

$\text{X}-\text{X}'$  is a 3- to 5-membered saturated or unsaturated hydrocarbon chain which is unsubstituted or substituted by one or more  $\text{C}_1$ - $\text{C}_{20}$ -hydrocarbon radicals; and

the  $\text{R}^1$  radicals are identical or different and are each a perfluorinated alkyl or aryl group having from 1 to 20 carbon atoms.

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12. (original) A catalyst system for olefin polymerization comprising a transition metal compound of claim 11 and, optionally, a catalyst support material.
13. (original) A catalyst system as claimed in claim 12, wherein said catalyst system is essentially free of an aluminoxane except when said catalyst support material is present and is a solid aluminoxane.
14. (original) The catalyst as claimed in claim 8, wherein M is titanium, zirconium or hafnium.
15. (original) The catalyst as claimed in claim 12, wherein M is zirconium.
16. (Once amended) The catalyst as claimed in claim 14, wherein [an unsubstituted or ]  
M is Zr,  
n is equal to 2,  
L are identical or different and are each a substituted cyclopentadienyl group, where two radicals L are linked to one another via a bridge Z, and  
Z is  $\text{CR}^2\text{R}^3$  or  $\text{SiR}^2\text{R}^3$  or a unit  $\text{Si}-(\text{CR}^2\text{R}^3)_x-\text{Si}$  which links two fragments  $\text{L}_n\text{M}^+\text{XX}'\text{A}-\text{R}^1_m$  with one another, where x is an integer from 0 to 10,  
X and X' together form a three-membered to five-membered ( $\text{C}_3$  - $\text{C}_5$ )-alkyl chain which is saturated or unsaturated and optionally substituted by  $\text{C}_1$  - $\text{C}_{20}$  -hydrocarbon radicals,  
A is a metal of group Ib, IIb, IIIb, IVa, Vb, of the Periodic Table of the Elements,

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$R^1$  are identical or different and are each a pentafluorinated alkyl or aryl group having from 1 to 20 carbon atoms,

$R^2$  and  $R^3$  are identical or different and are each a hydrogen atom, a halogen atom, a  $C_1$ - $C_{20}$ -alkyl group, a  $C_1$ - $C_{10}$ -fluoralkyl group, a  $C_1$ - $C_{10}$ -alkoxy group, a  $C_6$ - $C_{14}$ -aryl group, a  $C_6$ - $C_{10}$ -fluoroaryl group, a  $C_6$ - $C_{10}$ -aryloxy group, a  $C_2$ - $C_{10}$ -alkenyl group, a  $C_7$ - $C_{40}$ -arylalkyl group, a  $C_7$ - $C_{40}$ -alkylaryl group, a  $C_8$ - $C_{40}$ -arylalkenyl group and

m is equal to 3.

17. (original) The catalyst as claimed in claim 8, wherein

M is zirconium,

n is equal to 2,

L are identical or different and are each a substituted cyclopentadienyl group, where two radicals L are bonded to one another via a bridge Z, where Z is  $CR^2R^3$  or  $SiR^2R^3$ ,

X and X' together form an unsaturated four-membered ( $C_4$ )-alkyl chain whose hydrogen atoms can also be replaced by  $C_1$ - $C_{20}$ -alkyl groups,

A is a boron atom,

$R^1$  are identical and are each a pentafluorophenyl group ( $C_6F_5$ ),

$R^2$  and  $R^3$  are identical or different and are each a hydrogen atom, a halogen atom, a  $C_1$ - $C_{20}$ -alkyl group, a  $C_1$ - $C_{10}$ -fluoralkyl group, a  $C_1$ - $C_{10}$ -alkoxy group, a  $C_6$ - $C_{14}$ -aryl group, a  $C_6$ - $C_{10}$ -fluoroaryl group, a  $C_6$ - $C_{10}$ -aryloxy group, a  $C_2$ - $C_{10}$ -alkenyl group, a  $C_7$ - $C_{40}$ -arylalkyl group, a  $C_7$ - $C_{40}$ -alkylaryl group, a  $C_8$ - $C_{40}$ -arylalkenyl group and m is equal to 3.

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18. (Once amended) The compound as claimed in claim 1, wherein the transition metal compound of the formula I is selected from the group consisting of

bis(cyclopentadienyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

bis(methylcyclopentadienyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

bis(n-butylcyclopentadienyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

bisindenylZr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

(tert-butylamido)dimethyl(tetramethyl-η<sup>5</sup>-cyclopentadienyl)silaneZr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

bis(2-methylbenzoindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methylindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbisindenylZr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methylbenzoindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylbenzoindenyl)(2-methylindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylbenzoindenyl)(2-methyl-4-phenylindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylindenyl)(4-phenylindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methyl-4-phenylindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methyl-4,6-diisopropylindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

isopropylidene(cyclopentadienyl)(fluorenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

isopropylidene(cyclopentadienyl)(indenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

[[4-η<sup>5</sup>-cyclopentadienyl-4,7,7-trimethyl-(η<sup>5</sup>-4,5,6,7-tetrahydroindenyl)Zr<sup>+</sup>CH<sub>2</sub>CHCHCH<sub>2</sub>B<sup>-</sup>(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>]

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4- $\eta^5$ -cyclopentadienyl-4,7,7-trimethyl-( $\eta^5$ -4,5,6,7-tetrahydroindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methylindenyl)Zr<sup>+</sup> OCH<sub>2</sub> CH<sub>2</sub> CH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbisindenylZr<sup>+</sup> OCH<sub>2</sub> CH<sub>2</sub> CH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methylbenzoidenyl)Zr<sup>+</sup> OCH<sub>2</sub> CH<sub>2</sub> CH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylbenzoidenyl)(2-methylindenyl)Zr<sup>+</sup> OCH<sub>2</sub> CH<sub>2</sub> CH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylbenzoidenyl)(2-methyl-4-phenylindenyl)Zr<sup>+</sup> OCH<sub>2</sub> CH<sub>2</sub> CH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylindenyl)(4-phenylindenyl)Zr<sup>+</sup> OCH<sub>2</sub> CH<sub>2</sub> CH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methyl-4-phenylindenyl)Zr<sup>+</sup> OCH<sub>2</sub> CH<sub>2</sub> CH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methyl-4,6-diisopropylindenyl)Zr<sup>+</sup> OCH<sub>2</sub> CH<sub>2</sub> CH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediylbisindenylZr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methylbenzoidenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylbenzoidenyl)(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylbenzoidenyl)(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> CH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylindenyl)(4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methyl-4,6-diisopropylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> C(CH<sub>3</sub>)C(CH<sub>3</sub>)CH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

dimethylsilanediylbisindenylZr<sup>+</sup> CH<sub>2</sub> C(CH<sub>3</sub>)C(CH<sub>3</sub>)CH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;

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dimethylsilanediylbis(2-methylbenzoidenyl)Zr<sup>+</sup> CH<sub>2</sub> C(CH<sub>3</sub>)C(CH<sub>3</sub>)CH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;  
dimethylsilanediyl(2-methylbenzoidenyl)(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> C(CH<sub>3</sub>)C(CH<sub>3</sub>)CH<sub>2</sub> B<sup>-</sup>  
(CF<sub>3</sub>)<sub>3</sub>;  
dimethylsilanediyl(2-methylbenzoidenyl)(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub>  
C(CH<sub>3</sub>)C(CH<sub>3</sub>)CH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;  
dimethylsilanediyl(2-methylindenyl)(4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> C(CH<sub>3</sub>)C(CH<sub>3</sub>)CH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;  
dimethylsilanediylbis(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> C(CH<sub>3</sub>)C(CH<sub>3</sub>)CH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;  
dimethylsilanediylbis(2-methyl-4,6-diisopropylindenyl)Zr<sup>+</sup> CH<sub>2</sub> C(CH<sub>3</sub>)C(CH<sub>3</sub>)C<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;  
dimethylsilanediylbis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> C(CH<sub>3</sub>)C(CH<sub>3</sub>)CH<sub>2</sub> B<sup>-</sup> (CF<sub>3</sub>)<sub>3</sub>;  
methylphenylmethylene(fluorenyl)(cyclopentadienyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;  
diphenylmethylene(fluorenyl)(cyclopentadienyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;  
isopropylidene(3-methylcyclopentadienyl)(fluorenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;  
dimethylsilanediyl(3-tert-butylcyclopentadienyl)(fluorenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;  
diphenylsilanediyl(3-(trimethylsilyl)cyclopentadienyl)(fluorenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub>  
F<sub>5</sub>)<sub>3</sub>;  
phenylmethylsilanediylbis(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;  
phenylmethylsilanediylbisindenylZr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;  
phenylmethylsilanediylbis(2-methyl-4,5-benzoidenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;  
phenylmethylsilanediyl(2-methyl-4,5-benzoidenyl)(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup>  
(C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;  
phenylmethylsilanediyl(2-methyl-4,5-benzoidenyl)(2-methyl-4-phenylindenyl) Zr<sup>+</sup> CH<sub>2</sub>  
CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;  
phenylmethylsilanediyl(2-methylindenyl)(4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

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phenylmethyilsilanediybis(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

phenylmethyilsilanediybis(2-ethyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

phenylmethyilsilanediybis(2-methyl-4,6-diisopropylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

phenylmethyilsilanediybis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebisindenylZr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-methyl-4,5-benzoidindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylene(2-methyl-4,5-benzoidindenyl)(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylene(2-methyl-4,5-benzoidindenyl)(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylene(2-methylindenyl)(4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-methyl-4,5-benzoidindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-methyl-4,6-diisopropylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-ethyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-ethyl-4,6-diisopropylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-ethyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediybis(2-ethyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediybis(2,3,5-trimethylcyclopentadienyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

1, 6-{bis[methylsilylbis(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

1,6-{bis[methylsilylbis(2-ethyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

1,6-{bis[methylsilylbis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

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1,6-{bis[methylsilylbis(2-methyl-4,5-benzoindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

1,6-{bis[methylsilyl(2-methyl-4-phenylindenyl)(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

1,2-{bis[methylsilylbis(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane;

1,2-{bis[methylsilylbis(2-ethyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane;

1,2-{bis[methylsilylbis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane;

1,2-{bis[methylsilylbis(2-methyl-4,5-benzoindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane;

and

1,2-{bis[methylsilyl(2-methyl-4-phenylindenyl)(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane.

19. (Once amended) The catalyst as claimed in claim 8, wherein the transition metal compound of the formula I is selected from the group consisting of

bis(cyclopentadienyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

bis(methylcyclopentadienyl)Zr<sup>+</sup> C<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

bis(n-butylcyclopentadienyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

bisindenylZr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

(tert-butylamido)dimethyl(tetramethyl-η<sup>5</sup>-cyclopentadienyl)silaneZr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

bis(2-methylbenzoindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbisindenylZr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-methylbenzoindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylbenzoindenyl)(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediyl(2-methylbenzoindenyl)(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup>

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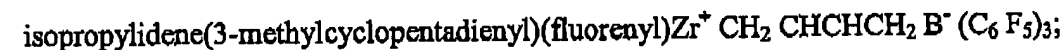
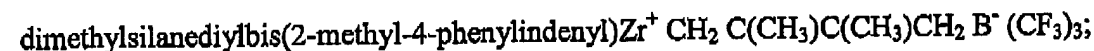
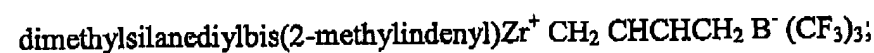
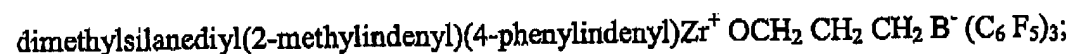
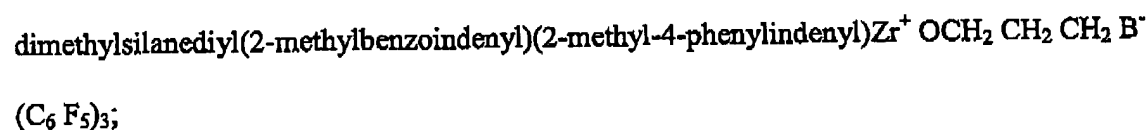
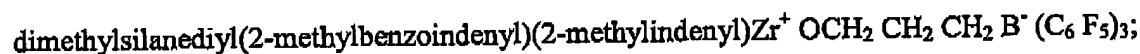
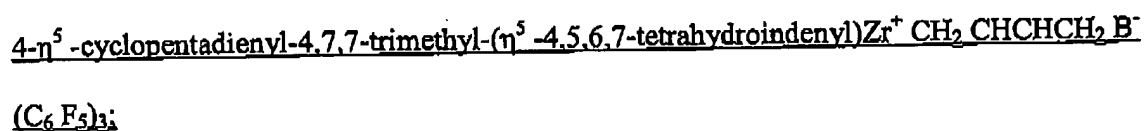
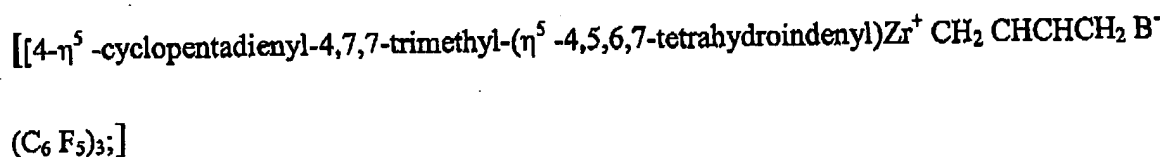
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 $(C_6F_5)_3$ ;dimethylsilanediyl(2-methylindenyl)(4-phenylindenyl) $Zr^+CH_2CHCHCH_2B^-(C_6F_5)_3$ ;dimethylsilanediylbis(2-methyl-4-phenylindenyl) $Zr^+CH_2CHCHCH_2B^-(C_6F_5)_3$ ;dimethylsilanediylbis(2-methyl-4,6-diisopropylindenyl) $Zr^+CH_2CHCHCH_2B^-(C_6F_5)_3$ ;dimethylsilanediylbis(2-methylbenzoindenyl) $Zr^+CH_2CHCHCH_2B^-(CF_3)_3$ ;dimethylsilanediyl(2-methylbenzoindenyl)(2-methylindenyl) $Zr^+CH_2CHCHCH_2B^-(CF_3)_3$ ;dimethylsilanediyl(2-methylbenzoindenyl)(2-methyl-4-phenylindenyl) $Zr^+CH_2CHCHCH_2B^-(CF_3)_3$ ;dimethylsilanediyl(2-methylindenyl)(4-phenylindenyl) $Zr^+CH_2CHCHCH_2B^-(CF_3)_3$ ;dimethylsilanediylbis(2-methyl-4-phenylindenyl) $Zr^+CH_2CHCHCH_2B^-(CF_3)_3$ ;dimethylsilanediylbis(2-methyl-4,6-diisopropylindenyl) $Zr^+CH_2CHCHCH_2B^-(CF_3)_3$ ;dimethylsilanediylbis(2-methyl-4-naphthylindenyl) $Zr^+CH_2CHCHCH_2B^-(CF_3)_3$ ;dimethylsilanediylbis(2-methylindenyl) $Zr^+CH_2C(CH_3)C(CH_3)CH_2B^-(CF_3)_3$ ;dimethylsilanediylbisindenyl $Zr^+CH_2C(CH_3)C(CH_3)CH_2B^-(CF_3)_3$ ;dimethylsilanediylbis(2-methylbenzoindenyl) $Zr^+CH_2C(CH_3)C(CH_3)CH_2B^-(CF_3)_3$ ;dimethylsilanediyl(2-methylbenzoindenyl)(2-methylindenyl) $Zr^+CH_2C(CH_3)C(CH_3)CH_2B^-(CF_3)_3$ ;dimethylsilanediyl(2-methylbenzoindenyl)(2-methyl-4-phenylindenyl) $Zr^+CH_2C(CH_3)C(CH_3)CH_2B^-(CF_3)_3$ ;dimethylsilanediyl(2-methylindenyl)(4-phenylindenyl) $Zr^+CH_2C(CH_3)C(CH_3)CH_2B^-(CF_3)_3$ ;dimethylsilanediylbis(2-methyl-4-naphthylindenyl) $Zr^+CH_2CHCHCH_2B^-(C_6F_5)_3$ ;isopropylidene(cyclopentadienyl)(fluorenyl) $Zr^+CH_2CHCHCH_2B^-(C_6F_5)_3$ ;isopropylidene(cyclopentadienyl)(indenyl) $Zr^+CH_2CHCHCH_2B^-(C_6F_5)_3$ ;

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 $F_5)_3$ ;phenylmethylsilanediylbis(2-methylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;phenylmethylsilanediylbisindenyl $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;phenylmethylsilanediylbis(2-methyl-4,5-benzoidenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;phenylmethylsilanediyl(2-methyl-4,5-benzoidenyl)(2-methylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;phenylmethylsilanediyl(2-methyl-4,5-benzoidenyl)(2-methyl-4-phenylindenyl)  $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;phenylmethylsilanediyl(2-methylindenyl)(4-phenylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;phenylmethylsilanediylbis(2-methyl-4-phenylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;phenylmethylsilanediylbis(2-ethyl-4-phenylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;phenylmethylsilanediylbis(2-methyl-4,6-diisopropylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;phenylmethylsilanediylbis(2-methyl-4-naphthylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;ethylenebis(2-methylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;ethylenebisindenyl $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;ethylenebis(2-methyl-4,5-benzoidenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;ethylene(2-methyl-4,5-benzoidenyl)(2-methylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;ethylene(2-methyl-4,5-benzoidenyl)(2-methyl-4-phenylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;ethylene(2-methylindenyl)(4-phenylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;ethylenebis(2-methyl-4,5-benzoidenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;ethylenebis(2-methyl-4-phenylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;ethylenebis(2-methyl-4,6-diisopropylindenyl) $Zr^+ CH_2 CHCHCH_2 B^- (C_6 F_5)_3$ ;

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ethylenebis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-ethyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-ethyl-4,6-diisopropylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

ethylenebis(2-ethyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2-ethyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

dimethylsilanediylbis(2,3,5-trimethylcyclopentadienyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub>;

1, 6-{bis[methylsilylbis(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

1,6-{bis[methylsilylbis(2-ethyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

1,6-{bis[methylsilylbis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

1,6-{bis[methylsilylbis(2-methyl-4,5-benzoidindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

1,6-{bis[methylsilyl(2-methyl-4-phenylindenyl)(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}hexane;

1,2-{bis[methylsilylbis(2-methyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane;

1,2-{bis[methylsilylbis(2-ethyl-4-phenylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane;

1,2-{bis[methylsilylbis(2-methyl-4-naphthylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane;

1,2-{bis[methylsilylbis(2-methyl-4,5-benzoidindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane;

and

1,2-{bis[methylsilyl(2-methyl-4-phenylindenyl)(2-methylindenyl)Zr<sup>+</sup> CH<sub>2</sub> CHCHCH<sub>2</sub> B<sup>-</sup> (C<sub>6</sub> F<sub>5</sub>)<sub>3</sub> ]}ethane.

20. (original) The compound as claimed in claim 1, wherein M is zirconium.



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21. (original) The compound as claimed in claim 1, wherein M is a metal atom group IVb of the Periodic Table of Elements.

Claims 22-53 cancelled